

Amendment and Response

Applicant: Philip K. Zietlow et al.

Serial No.: 09/887,702

Filed: March 1, 2001

Docket No.: 5183USADI

Title: METHOD AND APPARATUS FOR PROCESSING AN AERATED CONFECTIONERY FOAM ROPE

IN THE DETAILED DESCRIPTION

Please insert the following beginning at page 1, line 5:

Cross-reference to Related Application

This application is a divisional application of Patent Application Serial No. 09/392,182 filed on September 9, 1999, issued as U.S. Patent No. 6,197,355 on March 6, 2001, the teachings of which are incorporated herein by reference.

Please replace the paragraph beginning at page 2, line 8, with the following rewritten paragraph:

Substantial efforts have been made to optimize mass production of aerated confectionery foam products, as well as to augment the resulting product. For example, U.S. Patent ~~Serial No. xx/xxx,xxx~~6,180,158, ~~filed on~~ _____ and entitled “Process For Aerated Confection,” describes an improved mass production technique for preparing candies and confections, especially aerated confections such as marshmallows. Additionally, for example, U.S. Patent No. 5,019,404 and U.S. Patent Application Serial No. ~~xx/xxx,xxx~~, ~~filed on~~ _____ and No. 6,436,455, entitled “Multi-Color Aerated Confectionery Products and Processes for Making,” both described techniques for forming multi-colored marshmallow products for “complex” marbits on a mass production basis.

Please replace the paragraph beginning at page 5, line 2, with the following rewritten paragraph:

The present invention provides an improved system, method, and apparatus for processing an extruded rope of an aerated confectionery foam food product, such as marshmallow, into small pieces or bits. Obviously, prior to processing in accordance with the present invention, the extrudate rope must be formed. Creation of an aerated confectionery foam rope can be done in a wide variety of fashions, detailed examples of which are described in U.S. Patent Application Serial No. ~~xx/xxx,xxx~~6,180,158, ~~filed on~~ _____ and entitled “Process For Aerated Confection”; U.S. Patent Application Serial No. ~~xx/xxx,xxx~~, ~~filed on~~ _____ and No. 6,436,455, entitled “Multi-Colored Aerated Confectionery Products And Processes For Making”;

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and U.S. Patent No. 5,019,404 entitled "Multi-Color Confection Extrusion System", the teachings of which are incorporated herein by reference. As a point of reference, FIG. 1 provides a schematic flow diagram of a simplified method for preparing an extrudate rope of aerated confectionery foam, it being understood that a number of variations to the method shown in FIG. 1 can be employed and are well known in the art.

Please replace the paragraph beginning at page 8, line 31, with the following rewritten paragraph:

As a point of reference, FIG. 3 depicts the second conveyor 62 and the rotary cutter device 40 as a unitary processing device 70, supported by a frame 72 and wheels 74. The wheels 74 allow the processing device 70 to be easily maneuvered to various locations, and therefore can be used with any number of differently sized and located first conveyors 60. In one preferred embodiment, the conveyor 62 associated with the processing device 70 is orientated within the frame 72 to extend upwardly to the leading end 44 at an angle of approximately 15° relative to horizontal. This preferred angular orientation facilitates subsequent engagement by the rotary cutter device 40. Alternatively, other orientations can be employed, including a horizontal position. Further, in one preferred embodiment, the conveyor belt 64 has a conveying length of five feet (1.5 meters) and an available surface width of 20 inches (510mm). Other dimensions, either greater or smaller, are equally acceptable.

Please replace the paragraph beginning at page 9, line 12, with the following rewritten paragraph:

The leading end 44 of the conveyor 62, along with other components, are shown in greater detail in FIG. 4. The conveyor 62 nests within the frame 72 and includes, in part, the endless belt 64 and a pulley 80. The conveyor 62 operates in conjunction with the drive roller 46 that includes a shaft 8482. The leading end 44 of the conveyor 62 is defined by the pulley 80. The drive roller 46 is positioned above the leading end 44 of the conveyor 62 such that a center axis of the drive roller 46 is aligned with a center axis of the pulley 80. Notably, the drive roller 46 is preferably slightly spaced from the conveyor belt 64 to provide a gap 84. In this regard, the

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shaft of 82 of the drive roller 46 is connected to a vertical support plate 86, that in turn is secured to a support frame 88. The support frame 88 is attached to the frame 72 to secure the drive roller 46 at a desired position relative to the frame 72 and thus the conveyor 62. Preferably, the vertical support plate 86 is configured to be moveable relative to the support frame 88, such that a vertical position of the drive roller 46 relative to the conveyor belt 64 can be altered. With this feature, a size or height of the gap 82-84 is variable and can be selected in accordance with a size of the rope 32 (FIG. 2) being processed. In other words, an operator (not shown) can form the gap 82 to be slightly smaller than a height or thickness of the rope 32 such that the rope -32 is consistently and uniformly engaged by the conveyor 62/drive roller 46.

Please replace the paragraph beginning at page 10, line 1, with the following rewritten paragraph:

In a preferred embodiment, the drive roller 46 is rotated at a speed corresponding with a speed of the conveyor 38. To this end, the processing device 70 preferably includes a timing mechanism, shown generally at 90. The timing mechanism 90 comprises a timing belt 92 and a tension roller 94. The timing belt 92 articulates along and operably associates the pulley 80, the tension roller 94 and the drive roller 46. For example, each of the pulley 80, the tension roller 94 and the drive roller 46 can include toothed surfaces that are engageable by the timing belt 92. Rotation of the pulley 80 (otherwise resulting in movement of the conveyor belt 64) by a motor (not shown) is translated to the timing belt 92, causing the timing belt 92 to move. Movement of the timing belt 92 is translated to the drive roller 46, via the tension roller 94, such that the drive roller 46 rotates at the same speed and in a rotational direction opposite that of the pulley 80. For example, where the pulley 80 is driven in a clockwise direction, the tension roller 94 directs the timing belt 92 to contact and drive the drive roller 46 in a counter-clockwise direction. Importantly, the drive roller 46 is rotated at the same speed as the pulley 3080, and thus at a speed corresponding with a speed or feed rate of the conveyor belt 64. Alternatively, other timing mechanisms can be employed, whereby the drive roller 46 is driven independent of the conveyor 62.

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Please replace the paragraph beginning at page 13, line 15, with the following rewritten paragraph:

Each of the blades 126 are integrally formed from a rigid material, preferably heat treated 17-4 stainless steel. Other rigid materials, such as plastic or ceramic, can alternatively be employed. Due to the relatively high rate at which the blades 126 will cut through an aerated confectionery foam rope, it is preferred that the material selected for the blade 126 cause a small amount of friction to occur between the guide face 144 and the aerated confectionery foam being cut. With this preferred design characteristic, the cut piece will temporarily adhere to the guide face 144 so that the guide face 144 can carry the cut piece away (downwardly relative to the orientation of FIG. 7-) from the rope 32 (FIG. 2). Without this preferred frictional interaction, the cut piece may fly upwardly and undesirably contact another one of blades 126. Conversely, however, the material face 140 is preferably configured to limit material build-up. Thus, in one preferred embodiment, the material face 140 is coated is an anti-stick material, such as bees wax.